

**CAREX BICKNELLII, "BICKNELL'S SEDGE" (CYPERACEAE): NEW TO TEXAS, WITH A KEY TO TEXAS SPECIES OF SECTION OVALES**

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**ABSTRACT**

*Carex bicknellii* Britt., section *Ovales* (Cyperaceae), previously unsubstantiated in Texas, has been found in the following two northeast Texas counties: Delta and Lamar.

**KEY WORDS:** *Carex*, *Carex bicknellii*, section *Ovales*, Cyperaceae, Texas

*Carex bicknellii* Britt. "Bicknell's Sedge" is one of eleven species in section *Ovales* Kunth of the subgenus *Vignea* found in Texas. They are *Carex alata* Torr., *C. albolutescens* Schwein., *C. athrostachya* Olney, *C. bicknellii*, *C. brevior* (Dewey) Mackenzie ex Lunell, *C. brittoniana* Bailey, *C. festucacea* Schkuhr ex Willd., *C. hyalina* Boott, *C. longii* Mackenzie, *C. reniformis* (Bailey) Small, and *C. tribuloides* Wahl. Section *Ovales*, represented by about seventyfive species (Mackenzie 1931), is the largest group of carices in North America.

Correll & Johnston (1970) state that a report of *Carex bicknellii* in Texas was based on a specimen of *C. reniformis*. This is consistent with the authors' findings of Texas specimens labeled *C. bicknellii*. However, recent specimens have been collected that support its existence in Texas. Mackenzie (1931) gives the distribution for *C. bicknellii* from the valley of Penobscot River, Maine to Saskatchewan, Canada and southward to Delaware, Arkansas, and Oklahoma. He goes on to list specimens, mentioning New Mexico but not Texas. Fernald (1950), Steyermark (1968), and Correll & Correll (1972) all mirror Mackenzie's

distribution. Neither Mahler (1988) nor Hatch, *et al.* (1990) list this species as occurring in Texas.

Specimens collected: UNITED STATES. Texas: Delta Co.: 14 May 1989, S. & G. Jones 2887 & T. Powell (MICH, TAES). The collection site is 0.1 of a mile south on Farm Road 1529 from its junction with Hwy 154, E of Cooper. The habitat is an open hydric roadside ditch with the soils in the Kaufman series. They are moderately well drained, dark gray to black in color and slightly acid. The geology of the site is of the Marlbrook Marl (kmb) formation (Cretaceous). Associated species include *Carex crus-corvi* Shuttlw. ex Kunze, *C. hyalinolepis* Steud., *C. frankii* Kunth, *C. triangularis* Boeckl., *Scirpus pendulus* Muhl., *Hordeum pusillum* Nutt., *Oenothera speciosa* Nutt., and *Lolium perenne* L. Lamar Co.: 14 May 1989, S. & G. Jones 2882 & T. Powell (MICH). The collection site is 5.2 miles north on Farm Road 1184/1497 from its junction with the extension of Farm Road 1184 at Auds Creek, S of Paris. The habitat is an open mesic-hydric roadside ditch with the soils in the Houston Black-Lesson-Heiden Series. They are moderately well drained, dark gray in color and moderately alkaline. The geology of the site is of the Gober Chalk (kg) formation (Cretaceous). Associated species are *Carex crus-corvi*, *C. vulpinoidea* Michx., *Scirpus pendulus*, *Lolium perenne*, *Physostegia angustifolia* Fern., *Salix nigra* Marsh., *Daucus carota* L., *Juncus* spp., *Rumex* sp., and *Vicia* spp.

The following is a key to the section *Ovales* in Texas. Mature specimens are needed for correct identification.

#### KEY TO THE SECTION *OVALES* OF TEXAS

1. Spikelets reddish brown; lower inflorescence bract leaflike and longer than the inflorescence. .... *C. athrostachya*
- 1' Spikelets green to stramineous; lower inflorescence bract inconspicuous and much shorter than the inflorescence.
  2. Perigynia with oblanceolate bodies mostly less than 1.5 mm wide. .... *C. tribuloides*
  - 2' Perigynia with ovate, obovate, orbicular, or even reniform bodies 1.5-6.0 mm wide.
    3. Pistillate scales (at least the upper) scabrous awned; perigynia widest well above the middle; inner bands of sheaths green. .... *C. alata*
    - 3' Pistillate scales obtuse to  $\pm$  acuminate, but never scabrous awned; perigynia and sheaths various.
      4. Perigynia with several prominent nerves over the achene on the inner (ventral) surface.

5. Perigynium beaks less than 1.5 (-1.8) mm long; perigynia usually more than 30 per spike; spikes 3-8.
6. Longest perigynia 5-6 mm long. .... *C. bicknellii*
- 6' Longest perigynia 2.6-4.6 mm long.
7. Perigynia widest above the middle, the bodies  $\pm$  obovate.
8. Styles straight to somewhat sinuous; perigynium beaks  $\pm$  gradually tapering from widest point of body, appressed. .... *C. longii*
- 8' Styles abruptly contorted just above the achene; perigynium beaks abruptly tapered to a long tip, spreading. .... *C. albolutescens*
- 7' Perigynia widest at or below the middle; the bodies  $\pm$  orbicular. .... *C. festucea*
- 5' Perigynium beaks 1.5-2.5 mm long; perigynia 15-25 per spike; spikes 2-4. .... *C. hyalina*
- 4' Perigynia nerveless or rarely with 1-3 faint nerves over the achene on the inner (ventral) surface.
9. Perigynia papillose (at 30 X); bodies usually wider than long, at least on lower perigynia. .... *C. reniformis*
- 9' Perigynia not papillose; bodies usually as wide as long or narrower.
10. Perigynia 1.5-3.5 mm wide.
11. Achenes 1.7-2.0 mm long, perigynia 3.4-4.5 mm long and 2.4-3.2 mm wide. .... *C. brevior*
- 11' Achenes 1.3-1.7 mm long; perigynia 2.6-3.6 mm long and 1.5-2.4 mm wide. .... *C. festucacea*
- 10' Perigynia 3.7-6.0 mm wide. .... *C. brittoniana*

In our area, *Carex bicknellii* superficially resembles *C. reniformis* and *C. brevior*. However, a closer examination will differentiate *C. bicknellii* from those two taxa. The perigynia of *C. reniformis* is at least as wide as long, while those of *C. brevior* are about as wide as long, both lack nerves on the ventral surface over the achene. *Carex bicknellii* differs in having perigynia longer than wide with nerves on both faces. Steyermark (1968) provides the following diagnostic traits for *C. bicknellii*, "This is a fairly tall-growing *Carex*, attaining a height of 1 meter with the flowering culms, which greatly exceed the narrow leaves. The thin, transparent, large perigynia, mostly 5.5-7.5 mm long by 2.7-4.8 mm wide, many-nerved on each face, and the silvery brown

or straw-buff light colored scales and perigynia are marks of recognition." However, we have seen perigynia no longer than 6 mm.

Based on Hermann's (1972) description of *Carex bicknellii* var. *opaca* F.J. Herm. from Prairie and Lonoke counties, Arkansas, ours is of the typical variety, *C. bicknellii* var. *bicknellii*. *Carex bicknellii* var. *opaca* differs by having the perigynia strongly concave rather than flat. The perigynia are opaque (except for the outer margin), faintly if at all nerved ventrally, corky between the achene and wing, and the inner margin green, with only the outer hyaline. An unusual specimen Kessler 3331 (TAES) from Harris County, TX will key to *C. bicknellii* in our key, but differs in having perigynia with ovate bodies only 1.8-2.4 mm wide. Its identity is, as yet, unclear.

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